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**SHORT NOTES ON SOME CANADIAN
MINERALS.**

By W. F. FERRIER, B.A.Sc., F.G.S., GEOLOGICAL SURVEY OF CANADA.

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It is the intention of the writer in the following short notes to place on record a few new localities of some Canadian minerals, and also to call attention to the interesting forms in which, in several instances, they occur at these and other localities already known.

1. NATIVE ARSENIC.

A year ago a specimen was received from Mr. Charles Brent, Mining Engineer, of Port Arthur, Ont., which contained this mineral in some quantity.

The locality is given as Edwards Island, Thunder Bay District, Lake Superior, nine miles east of Silver Islet, and the ore, of which the arsenic forms a part, is said to have yielded in selected samples as high as 130 oz. silver to the ton, the average being about 75 oz.

The arsenic occurs, in the specimen examined, in small reniform masses, tarnished to a dark-grey color and imbedded in a white cleavable calcite which forms small patches in a dark-grey, fine-grained, crystalline limestone.

It greatly resembles in appearance that found at Joachimsthal, in Bohemia.

Blende, galenite, pyrite, and chalcopyrite were observed as associated minerals, and native silver is also said to occur rather plentifully with it.

The Silver Islet Consolidated Mining and Land Co. during

¹ One of the species described, the Molybdenite, is from Labrador.

the past year did considerable development work on the property with a view to working the ores for silver, but nothing is being done at present.

Only one other recorded occurrence of this interesting species in Canada has come under the writer's notice, viz : that from the Fraser River, British Columbia.¹

2. MOLYBDENITE.

Some time ago a specimen of this mineral, collected by Mr. J. D. Frossard, Mining Engineer, Montreal, in Labrador, was placed in my hands by Mr. B. T. A. Bell of the "Canadian Mining Review."

It is interesting as a contribution to our knowledge of the minerals of that little known land. It occurs in broad foliated plates and nodules in a light colored, rather coarsely crystalline granitic rock which at first sight closely resembles a crystalline limestone, or dolomite, but is almost wholly composed of quartz and felspar.

3. SPHALERITE OR BLENDE.

During the past summer several good specimens of this sulphide of zinc were collected by the writer from the quartz veins in the townships of Risborough and Marlow, Beauce Co., Quebec, described by Dr. Ells in his report on that region.²

Some very fine crystals were observed, but it was found impossible to obtain perfect specimens of them, as they are exceedingly fragile and imbedded in a very hard and compact quartz.

Twinned octahedra up to an inch in diameter occur, having the planes very smooth and angles sharply defined.

The best specimens were obtained from the "Armstrong" vein, mentioned in Dr. Ell's report.

4. PYRITE.

Crystals of this well-known mineral lately found by Mr.

¹ Ann. Report Geol. Surv. Can. 1886, Part T, p. 9.

" " " " " 1887-88, Part R, pp. 106, 161.

² Ann. Report Geol. Surv. Can. 1886, Part J, p. 59.

" " " " " 1888-89, Part. K, p. 77.

H. M. Ami at Perkins Mills, Templeton, Ottawa Co., Quebec, though not of very large size, (about $\frac{1}{2}$ in. diameter) are remarkable for their perfection, and brilliancy of lustre.

They exhibit the faces of the cube and octahedron ($\infty 0,0$) the former being more extensively developed than the latter.

5. MARTITE.

Mr. A. M. Campbell of Perth, Ont., sent me some octahedral crystals from the Dalhousie Iron Mine, on lot 1, range 4 of the township of Dalhousie, Lanark Co., Ontario.

They proved, on examination, to consist of magnetite, partially, and in a few cases, completely, altered to hematite, though still retaining the sharp outlines of the original octahedrons of magnetite.

The crystals in which the alteration is complete may properly be referred to Martite, defined by Breithaupt as sesquioxide of iron occurring under an isometric form.

The completely altered crystals are not magnetic or only very feebly so.

Some of them are an inch and more in diameter.

Specimens which have been exposed to the weather are externally of a bright brick-red color.

6. KERMESITE.

Occurs in small radiating tufts of capillary crystals on stibnite from Rawdon, Hants Co., Nova Scotia, and exhibits all the ordinary characters of the species.

It results no doubt from the alteration of the stibnite.

Mr. C. W. Willimott first called my attention some time ago to its occurrence at this locality.

7. QUARTZ.

Of this familiar mineral some good crystals have lately been brought to light. Mr. A. P. Low, during the past summer found transparent crystals in a red pegmatite at Lac aux Iles, Portneuf Co., Quebec, which shew the com-

bination $a = \infty P$, $b = P$, $c = 2P2$, the $2P2$ faces being remarkably well developed. (See Fig. 4.)

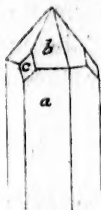


Fig. 4. Quartz Crystal—Lac aux Iles, Portneuf Co., P. Q.

Mr. John Stewart, of Ottawa, has also presented me with some interesting crystals of smoky quartz, from lot 44, range 6, Bouchette township, Ottawa Co., Quebec.

In these both prismatic and pyramidal faces are *concave*, giving the crystal the peculiar appearance shown in Plate II, which is reproduced from a drawing kindly made for me by Mr. L. M. Lambe, the artist of the Survey.

When a straight edge is laid across one of the prism faces ($\frac{1}{8}$ in. wide), the deflection of the face from its normal position, at a point half way across it, is seen to be about $\frac{1}{20}$ of an inch, the curvature being quite symmetrical.

Similar crystals have been found in Orange County, New York State.

8. SPINEL.

Beautiful, brilliant, jet-black octahedrons of spinel were lately found by Mr. John Stewart, in Aylwin township, Ottawa county, Quebec, imbedded in a crystalline limestone.

Perfect crystals in my possession measure $\frac{3}{4}$ in. in diameter, and some of them exhibit the combination of octahedron and dodecahedron $(0, \infty 0)$.

A complete alteration of the mineral to some species of mica has been observed in a few instances.

9. ANHYDRITE and GYPSUM.

Mr. H. Lundbohm of the Geological Survey of Sweden, who has recently been in Canada studying the mode of occurrence of our apatite, placed in my hands for deter-

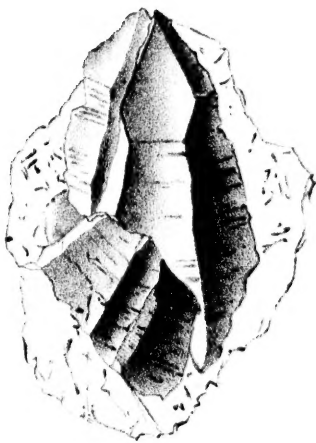
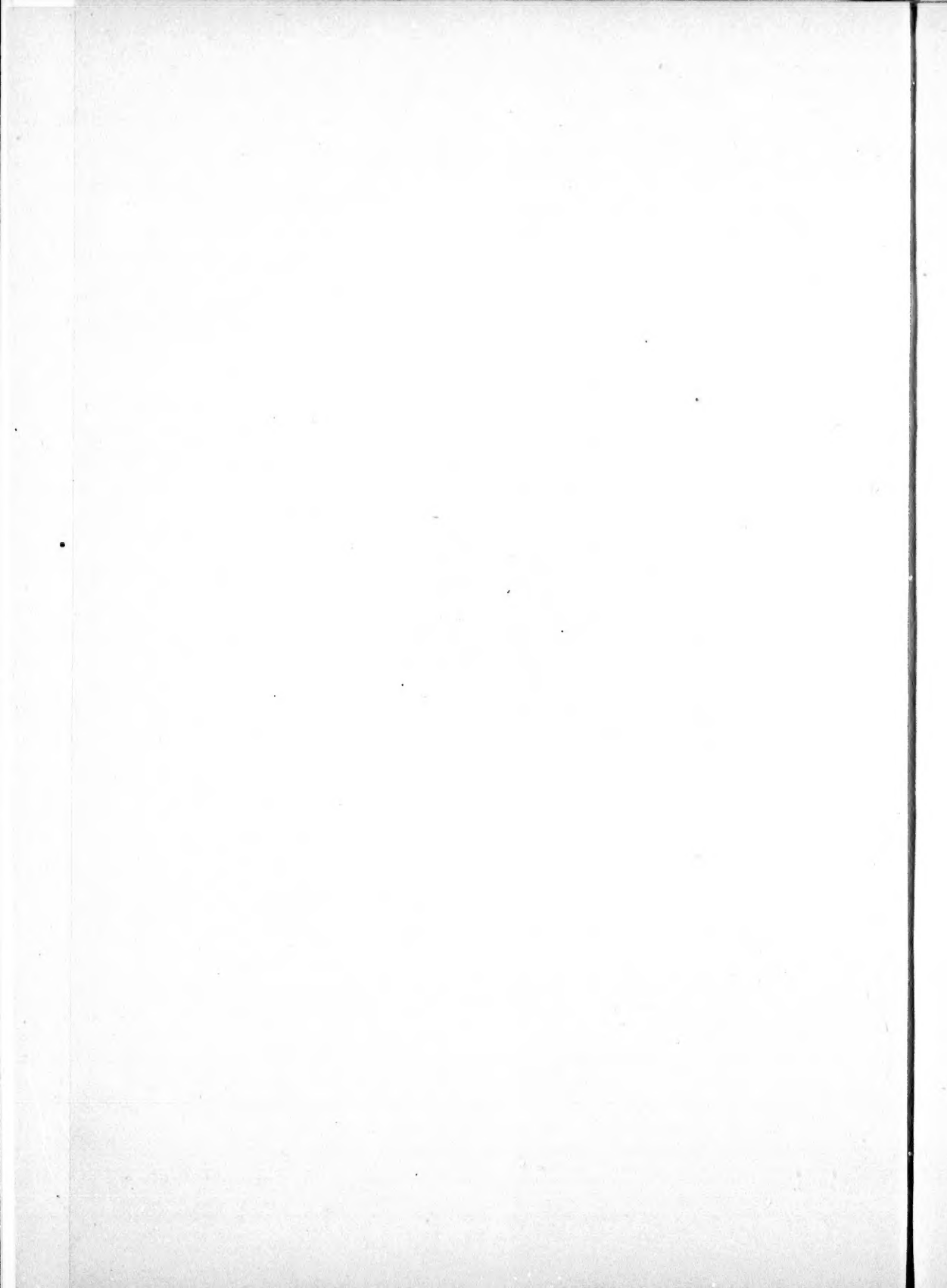


PLATE II.

QUARTZ CRYSTAL, WITH CURVED FACES (CONCAVE.)

BOUCHETTE TOWNSHIP, OTTAWA CO., QUE.



ination some very interesting specimens of these minerals, collected by him at the "100 ton pit," McLaren's Phosphate Mine, lot 4, concession 8, North Burgess, Lanark Co., Ont.

They present all the ordinary physical characters of these species.

The anhydrite is in cleavable masses of a light purple or lilac color, and shews alteration to a snowy white gypsum, being in places, traversed by a network of little cracks filled by that mineral, a process of alteration apparently analogous to that of the serpentinization of olivine. Sometimes the alteration has taken place only in the direction of the cleavage planes, giving rise to a most beautiful banded structure, anhydrite and gypsum arranged in alternate layers.

Some good sized masses of fine-grained white gypsum occur with the anhydrite, probably derived from its alteration.

Both the anhydrite and gypsum occur in crystalline limestone, associated with apatite, and their presence in the Laurantian limestones is of special interest, opening up, as it does, many interesting questions regarding the origin of these limestones.

Hitherto the sulphates of lime seem to have been overlooked in enumerating the minerals of the Laurentian.

It is purposed to make a careful study of the mode of occurrence of these sulphates in the Laurentian limestones, and to publish any interesting facts which may be ascertained regarding it.

Ottawa, Nov. 24, 1891.